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Peter J. O'Riordan

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BEYER WEAVER & THOMAS LLP

P.O. BOX 70250

OAKLAND, CA 94612-0250

EXAMINER

MOORE JR, MICHAEL J

ART UNIT

PAPER NUMBER

2666

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/016,866	Applicant(s) O'RIORDAN, PETER J.	
	Examiner Michael J. Moore, Jr.	Art Unit 2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 11/21/2002 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement.

Claim Objections

2. Claims **1, 5-9, 16, 20-23, 29, 32-35, and 37** are objected to because of the following informalities:

Regarding claim **1**, on line 7, the word "a" is missing between words "be" and "designated". Also, on lines 4 and 9, an objection is made to the phrase "the network device". It is unclear what device is being referred to.

Regarding claim **5**, the quotation marks used around the words "up" and "down" should be removed.

Regarding claim **6**, on line 2, an objection is made to the use of the phrase "may be". This phrase constitutes optional language that does not limit the scope of this claim (See MPEP 2106, II, C). Also, on line 1, the word "wherein" is missing before the word "the". Lastly, the quotation marks used around the words "up" and "down" should be removed.

Regarding claim **7**, the quotation marks used around the words "up" and "down" should be removed.

Regarding claim **8**, the quotation marks used around the word "up" should be removed. Also, a period is needed at the end of this claim.

Regarding claim **9**, on line 3, there is some confusion regarding the phrase "second first interface". It is unclear which interface is being referred to.

Regarding claim **16**, on line 3, there is some confusion regarding the "first logical interfaces" referred to on this line. It is believed that this phrase should be "second logical interfaces" in order to correspond to the "second interfaces" claimed on line 6.

Regarding claims **20-22**, the quotation marks used around the words "up" and "down" should be removed.

Regarding claim **21**, on line 2, an objection is made to the use of the phrase "may be". This phrase constitutes optional language that does not limit the scope of this claim (See MPEP 2106, II, C).

Regarding claim **23**, the quotation marks used around the word "up" should be removed. Also, a period is needed at the end of this claim.

Regarding claim **29**, on line 3, there is some confusion regarding the "first logical interfaces" referred to on this line. It is believed that this phrase should be "second logical interfaces" in order to correspond to the "second interfaces" claimed on line 9.

Regarding claim **32**, the quotation marks used around the words "up" and "down" should be removed.

Regarding claim **33**, on line 1, the word "wherein" is missing before the word "the". Also, there is some confusion regarding the phrase "the method" on line 4. It is unclear what method is being referred to. Lastly, on line 2, an objection is made to the use of the phrase "may be". This phrase constitutes optional language that does not limit the scope of this claim (See MPEP 2106, II, C).

Regarding claim **34**, the quotation marks used around the word "down" should be removed.

Regarding claim **35**, a period is needed at the end of this claim.

Regarding claim **37**, on line 3, there is some confusion regarding the "first logical interfaces" referred to on this line. It is believed that this phrase should be "second logical interfaces" in order to correspond to the "second interfaces" claimed on line 12.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claim **38** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim **38** recites the limitation "an apparatus as recited in claim 16" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is believed that this claim should depend on claim **37**.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims **1-7, 10, 12-22, 26-34, and 36-38** are rejected under 35 U.S.C. 102(e) as being anticipated by Mikkonen (U.S. 6,885,633). Mikkonen teaches all of the limitations of the specified claims with the reasoning that follows.

Regarding claim 1, “a first router having a plurality of first logical interfaces corresponding to one or more physical ports of the network device, the first router being configured to enable the first logical interfaces when the first router is assigned to be a designated router and to disable the first logical interfaces when the first router is not assigned to be a designated router” is anticipated by node 100a (first router) of Figure 1 containing active physical network interfaces 110a and 110c as well as inactive physical network interfaces 110b and 110d as spoken of on column 3, lines 1-29.

“A second router having a plurality of second logical interfaces corresponding to one or more physical ports of the network device, the second router being configured to enable the second logical interfaces when the second router is assigned to be a designated router and to disable the second logical interface when the second router is not assigned to be a designated router” is anticipated by node 100b (second router) of Figure 1 containing active physical network interfaces 110g and 110h as well as inactive physical network interfaces 110e and 110f as spoken of on column 3, lines 1-29.

“A supervisor module configured to assign a selected one of the first and second routers to be a designated router” is anticipated by means 120 (supervisor module) of Figure 1 that monitors the operation of nodes 100a and 100b as spoken of on column 3,

lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Lastly, “wherein each first interface of the first router has a same Internet protocol (IP) address and media access control (MAC) address as each corresponding second interface of the second router” is anticipated by the corresponding physical interfaces 110 shown in Figure 1 that have same IP and MAC addresses (ex. 110a and 110e, 110b and 110g, etc.).

Regarding claim 2, “wherein the first router is further configured to inform the second router about any change in a configuration of its first interfaces when it is assigned as the designated router and to change the configuration of its first interfaces to correspond to a change in configuration of the second interfaces when it is not assigned as the designated router and the second router informs the first router of such a change in the configuration of the first interface so that the first interfaces have a same number and configuration as the second interfaces” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Lastly, “the second router is further configured to inform the first router about any change in the configuration of its second interfaces when it is assigned as the designated router and to change the configuration of its second interfaces to correspond to a change in state of the first interfaces when it is not assigned as the designated

router and the first router informs the second router of such a change in the configuration of the second interfaces so that the first interfaces have a same number and configuration as the second interfaces as the second interfaces” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim 3, “a control bus for managing the first and second router and the supervisor module and a data bus through which data is received and transmitted into and out of the physical ports of the network device” is anticipated by the communication link (control bus) between means 120 of Figure 1 as well as the data paths (data bus) shown in Figure 1 connecting networks 10 and 20 via physical interfaces 110.

Regarding claim 4, “the supervisor module is further configured to poll the currently assigned designated router to determine whether the designated router has failed and when the designated router has failed, to assign another of the routers to be a designated router” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim 5, “the first router is further configured to enable the first interfaces by setting a link state of each first interface to an up value and to disable the

first interfaces by setting a link state associated with each first interface to a down value, and the second router is further configured to enable the second interfaces by setting a link state of each second interface to an up value and to disable the second interfaces by setting a link state associated with each second interface to a down value” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim 6, “wherein the first and second interfaces each have an associated administrative state that may be set by a user or the supervisor module to an up or down state to thereby enable or disable, respectively, the interface, wherein the first and second routers are both configured to maintain the same values for their interface’s administrative states” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim 7, “the first router is further configured to communicate to the second router a change of an administrative state of a selected first interface to a down value when the first router is assigned as the designated router and to change the administrative state of the selected first interface to a down state when the second router communicates that its corresponding second interface’s administrative state has

been changed to a down state” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Lastly, “the second router is further configured to communicate to the first router a change of an administrative state of a selected second interface to a down value when the second router is assigned as the designated router and to change the administrative state of the selected second interface to a down state when the first router communicates that its corresponding first interface’s administrative state has been changed to a down state” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim 10, “a plurality of interface modules for interfacing with a plurality of physical ports, wherein the first and second interfaces of the first and second routers, respectively, each correspond to one or more of the physical ports” is anticipated by physical interfaces 110 of Figure 1 that interface networks 10 and 20.

Regarding claim 12, “wherein the first router and the second router are each configured to provide layer 3 switching when it is assigned as a designated router, and the supervisor module is configured to provide layer 2 switching” is anticipated by nodes

100a and 100b (routers) of Figure 1 as well as means 120 (supervisor module) of Figure 1 that perform switching of data and control traffic, respectively.

Regarding claim **13**, "wherein the first and second router appear together as a single router to other neighboring routers within the computer network" is anticipated by fault detection and the transparent transfer from a broken node to another node as spoken of on column 4, lines 30-33.

Regarding claim **14**, "wherein the supervisor module includes a first slot in which the first router is coupled and a second slot in which the second router is coupled" is anticipated by nodes 100a and 100b (routers) coupled to means 120 (supervisor module) in Figure 1.

Regarding claim **15**, "a first network system configured with a hot standby protocol and a second network system configured with a hot standby router protocol, wherein the first and second network systems are configured to act as an active router and a standby router within a hot standby router protocol group" is anticipated by the system shown in Figure 2 containing two node units 200 that provide backup for each other in case of a fault as spoken of on column 4, lines 5-20.

Regarding claim **16**, "a method for providing data forwarding redundancy with a first router having a plurality of first logical interfaces corresponding to one or more physical ports of a network device, a second router having a plurality of first logical interfaces corresponding to one or more physical ports of the network device, and a supervisor module" is anticipated by node 100a (first router) of Figure 1 containing active physical network interfaces 110a and 110c as well as inactive physical network

interfaces 110b and 110d as spoken of on column 3, lines 1-29, node 100b (second router) of Figure 1 containing active physical network interfaces 110g and 110h as well as inactive physical network interfaces 110e and 110f as spoken of on column 3, lines 1-29, as well as means 120 (supervisor module) of Figure 1 that monitors the operation of nodes 100a and 100b as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

“Configuring each pair of the first and second interfaces with a same IP and MAC address” is anticipated by the corresponding physical interfaces 110 shown in Figure 1 that have same IP and MAC addresses (ex. 110a and 110e, 110b and 110g, etc.).

“Assigning a selected one of the first and second routers to be a designated router” is anticipated by node 100a (designated router) that in normal operation forwards traffic arriving from network 10 to IP address IP A via network interfaces 110a and 110c to the second network 20 as spoken of on column 3, lines 9-13.

Lastly, “enabling the first logical interfaces when the first router is assigned to be a designated router”, “enabling the second logical interfaces when the second router is assigned to be a designated router”, “disabling the first logical interfaces when the first router is not assigned to be a designated router”, and “disabling the second interfaces when the second router is not assigned to be a designated router” is anticipated by means 120 (supervisor module) of Figure 1 that monitors the operation of nodes 100a and 100b as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim 17, "informing the second router about any change in a configuration of the first router's first interfaces when the first router is assigned as the designated router" and "changing the configuration of the first router's first interfaces to correspond to a change in a configuration of the second interfaces when the first router is not assigned as the designated router and the first router is informed of a change in the configuration of the first interfaces so that the first interfaces have a same number and configuration as the second interfaces" is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

"Informing the first router about any change in the configuration of the second router's second interfaces when the second router is assigned as the designated router" and "changing the configuration of the second router's second interfaces to correspond to a change in a configuration of the first interfaces when the second router is not assigned as the designated router and the second router is informed of such a change in a state of the first interfaces so that the first interfaces have a same number and configuration as the second interfaces" is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **18**, “managing the first and second router and the supervisor module through a control bus of the network system and receiving and transmitting data into and out of the physical ports of the network device and through a data bus of the network device” is anticipated by the communication link (control bus) between means 120 of Figure 1 as well as the data paths (data bus) shown in Figure 1 connecting networks 10 and 20 via physical interfaces 110.

Regarding claim **19**, “polling the currently assigned designated router to determine whether the designated router has failed and when the designated router has failed, assigning another of the routers to be a designated router” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **20**, “enabling the first interfaces is accomplished by setting a link state of each first interface to an up value and disabling the first interfaces is accomplished by setting a link state associated with each first interface to a down value” and enabling the second interfaces is accomplished by setting a link state of each second interface to an up value and disabling the second interfaces is accomplished by setting a link state associated with each second interface to a down state” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as

spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **21**, “the first and second interfaces each have an associated administrative state that may be set by a user or the supervisor module to an up or down state to thereby enable or disable, respectively, the interface, the method further comprising maintaining the same values for their interface’s administrative states” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **22**, “communicating to the second router a change of an administrative state of a selected first interface to a down value when the first router is assigned as the designated router and changing the administrative state of the selected first interface to a down state when the second router communicates that its corresponding second interface’s administrative state has been changed to a down state” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Lastly, “communicating to the first router a change of an administrative state of a selected second interface to a down value when the second router is assigned as the designated router and changing the administrative state of the selected second

interface to a down state when the first router communicates that its corresponding first interface's administrative state has been changed to a down state" is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **26**, "wherein the first router and the second router are each configured to provide layer 3 switching when it is assigned as a designated router, and the supervisor module is configured to provide layer 2 switching" is anticipated by nodes 100a and 100b (routers) of Figure 1 as well as means 120 (supervisor module) of Figure 1 that perform switching of data and control traffic, respectively.

Regarding claim **27**, "wherein the first and second router appear together as a single router to other neighboring routers within the computer network" is anticipated by fault detection and the transparent transfer from a broken node to another node as spoken of on column 4, lines 30-33.

Regarding claim **28**, "wherein the supervisor module includes a first slot in which the first router is coupled and a second slot in which the second router is coupled" is anticipated by nodes 100a and 100b (routers) coupled to means 120 (supervisor module) in Figure 1.

Regarding claim **29**, "a computer program product for providing data forwarding redundancy with a first router having a plurality of first logical interfaces corresponding to one or more physical ports of a network device, a second router having a plurality of

first logical interfaces corresponding to one or more physical ports of the network device, and a supervisor module” is anticipated by node 100a (first router) of Figure 1 containing active physical network interfaces 110a and 110c as well as inactive physical network interfaces 110b and 110d as spoken of on column 3, lines 1-29, node 100b (second router) of Figure 1 containing active physical network interfaces 110g and 110h as well as inactive physical network interfaces 110e and 110f as spoken of on column 3, lines 1-29, as well as means 120 (supervisor module) of Figure 1 that monitors the operation of nodes 100a and 100b as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

“At least one computer readable medium” and “computer program instructions stored within the at least one computer readable product” is anticipated by nodes 100a and 100b that contains means 120 composed of software modules executed by the node processor as spoken of on column 3, lines 53-57.

“Configure each pair of the first and second interfaces with a same IP and MAC address on each interface” is anticipated by the corresponding physical interfaces 110 shown in Figure 1 that have same IP and MAC addresses (ex. 110a and 110e, 110b and 110g, etc.).

“Assign a selected one of the first and second routers to be a designated router” is anticipated by node 100a (designated router) that in normal operation forwards traffic arriving from network 10 to IP address IP A via network interfaces 110a and 110c to the second network 20 as spoken of on column 3, lines 9-13.

Lastly, “enable the first logical interfaces when the first router is assigned to be a designated router”, “enable the second logical interfaces when the second router is assigned to be a designated router”, “disable the first logical interfaces when the first router is not assigned to be a designated router”, and “disable the second logical interfaces when the second router is not assigned to be a designated router” is anticipated by means 120 (supervisor module) of Figure 1 that monitors the operation of nodes 100a and 100b as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim 30, “inform the second router about any change in a configuration of the first router’s first interfaces when the first router is assigned as the designated router” and “change the configuration of the first router’s first interfaces to correspond to a change in a configuration of the second interfaces when the first router is not assigned as the designated router and the first router is informed of a change in the configuration of the first interfaces so that the first interfaces have a same number and configuration as the second interfaces” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

“Inform the first router about any change in the configuration of the second router’s second interfaces when the second router is assigned as the designated router” and “change the configuration of the second router’s second interfaces to correspond to

a change in a configuration of the first interfaces when the second router is not assigned as the designated router and the second router is informed of such a change in a state of the first interfaces so that the first interfaces have a same number and configuration as the second interfaces” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **31**, “a network device to poll the currently assigned designated router to determine whether the designated router has failed and when the designated router has failed, assigning another of the routers to be a designated router” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **32**, “enabling the first interfaces is accomplished by setting a link state of each first interface to an up value and disabling the first interfaces is accomplished by setting a link state associated with each first interface to a down value” and enabling the second interfaces is accomplished by setting a link state of each second interface to an up value and disabling the second interfaces is accomplished by setting a link state associated with each second interface to a down state” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as

spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **33**, “the first and second interfaces each have an associated administrative state that may be set by a user or the supervisor module to an up or down state to thereby enable or disable, respectively, the interface, the method further comprising maintaining the same values for their interface’s administrative states” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **34**, “communicate to the second router a change of an administrative state of a selected first interface to a down value when the first router is assigned as the designated router and change the administrative state of the selected first interface to a down state when the second router communicates that its corresponding second interface’s administrative state has been changed to a down state” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Lastly, “communicate to the first router a change of an administrative state of a selected second interface to a down value when the second router is assigned as the designated router and change the administrative state of the selected second interface

to a down state when the first router communicates that its corresponding first interface's administrative state has been changed to a down state" is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim **36**, "wherein the first and second router appear together as a single router to other neighboring routers within the computer network" is anticipated by fault detection and the transparent transfer from a broken node to another node as spoken of on column 4, lines 30-33.

Regarding claim **37**, "an apparatus for providing data forwarding redundancy with a first router having a plurality of first logical interfaces corresponding to one or more physical ports of a network device, a second router having a plurality of first logical interfaces corresponding to one or more physical ports of the network device, and a supervisor module" is anticipated by node 100a (first router) of Figure 1 containing active physical network interfaces 110a and 110c as well as inactive physical network interfaces 110b and 110d as spoken of on column 3, lines 1-29, node 100b (second router) of Figure 1 containing active physical network interfaces 110g and 110h as well as inactive physical network interfaces 110e and 110f as spoken of on column 3, lines 1-29, as well as means 120 (supervisor module) of Figure 1 that monitors the operation of nodes 100a and 100b as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

“Means for configuring the first and second routers with a same IP and MAC address on each interface” is anticipated by the corresponding physical interfaces 110 shown in Figure 1 that have same IP and MAC addresses (ex. 110a and 110e, 110b and 110g, etc.).

“Means for assigning a selected one of the first and second routers to be a designated router” is anticipated by node 100a (designated router) that in normal operation forwards traffic arriving from network 10 to IP address IP A via network interfaces 110a and 110c to the second network 20 as spoken of on column 3, lines 9-13.

Lastly, “means for enabling the first logical interfaces when the first router is assigned to be a designated router”, “means for enabling the second logical interfaces when the second router is assigned to be a designated router”, “means for disabling the first logical interfaces when the first router is not assigned to be a designated router”, and “means for disabling the second interfaces when the second router is not assigned to be a designated router” is anticipated by means 120 (supervisor module) of Figure 1 that monitors the operation of nodes 100a and 100b as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Regarding claim 38, “means for informing the second router about any change in a configuration of the first router’s first interfaces when the first router is assigned as the designated router” and “means for changing the configuration of the first router’s first interfaces to correspond to a change in a configuration of the second interfaces when

the first router is not assigned as the designated router and the first router is informed of a change in the configuration of the first interfaces so that the first interfaces have a same number and configuration as the second interfaces” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

“Means for informing the first router about any change in the configuration of the second router’s second interfaces when the second router is assigned as the designated router” and “means for changing the configuration of the second router’s second interfaces to correspond to a change in a configuration of the first interfaces when the second router is not assigned as the designated router and the second router is informed of such a change in a state of the first interfaces so that the first interfaces have a same number and configuration as the second interfaces” is anticipated by means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims **8, 9, 11, 23-25, and 35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikkonen (U.S. 6,885,633) in view of Ammitzboell (U.S. 6,934,292).

Regarding claims **8, 9, 11, 23-25, and 35**, Mikkonen teaches means 120 of Figure 1 present in nodes 100a and 100b (routers) that monitors (polls) the operation of nodes 100a and 100b, provides indication of operational state as spoken of on column 3, lines 53-60 and regulates the activation of inactive interfaces upon a fault as spoken of on column 3, lines 30-44. Mikkonen does not teach enabling an interface based upon the creation of a VLAN.

However, Ammitzboell teaches a virtual router configuration in Figure 4 where redundant router devices that use same IP and MAC addresses interface to multiple VLANs.

At the time of the invention, it would have been obvious to someone skilled in the art to combine the VLAN teachings of Ammitzboell with the system of Mikkonen in order to emulate a single router in a VLAN environment that provides more efficient load sharing as spoken of on column 2, lines 22-36.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Coile et al. (U.S. 6,108,300), Wilson (U.S. 6,885,667), and Clear et al. (U.S. 2001/0048661) are other references pertinent to this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Moore, Jr. whose telephone number is (571)

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272-3168. The examiner can normally be reached on Monday-Friday (8:30am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached at (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael J. Moore, Jr.
Examiner
Art Unit 2666

mjm MM

Seema S. Rao
SEEMA S. RAO 11/8/05
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800